

Claims:

1. A method for reducing visual artefacts in a digital image, which is encoded and decoded by blocks (B1, B2, B3, B4), in which filtering is performed to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the filtering is performed after the current block (B1, B2, B3, B4) is decoded and there is a boundary available for filtering between the current block and a previously decoded block.
2. A method according to Claim 1, **characterized** in that the filtering is performed substantially immediately after the current block is decoded and there is a boundary available for filtering.
3. A method according to Claim 1, **characterized** in that the filtering is performed before all blocks of the digital image are decoded.
4. A method according to Claim 1, in which the blocks are decoded in a certain decoding order, **characterized** in that the filtering is performed before decoding a block later in the decoding order than the current block and adjacent to the current block.
5. A method according to Claim 1, **characterized** in that the decoding and the filtering of a block are performed sequentially.
6. A method according to Claim 1, **characterised** in that the filtering is arranged to cause modification of a first number of pixel values in the current block and a second number of pixel values in the previously decoded block.
7. A method according to Claim 1, **characterized** in that it is determined (603, 604) whether there exists more than one boundary available for filtering, wherein filtering is performed on said more than one boundary (R12, R13, R24, R34) available for filtering.
8. A method according to Claim 7, **characterized** in that filtering is performed in a certain order on said more than one boundary (R12, R13, R24, R34).

9. A method according to Claim 1, **characterized** in that filtering is performed to reduce visual artefacts due to boundaries (R12, R13, R24, R34) between blocks (B1, B2, B3, B4) in the digital image during encoding and decoding of the digital image, and that the order of filtering the boundaries in decoding is the same as in encoding.

10. A method according to Claim 1, **characterized** in that a pixel value is corrected by filtering, and that said corrected pixel value is used in filtering at least one other boundary (R12, R13, R24, R34).

11. A method according to Claim 1, **characterized** in that intra prediction of a subsequent block is performed after the current block (B1, B2, B3, B4) is decoded, that a pixel value is corrected by filtering, and that said corrected pixel value is used in the intra prediction of at least one subsequent block.

12. A method according to Claim 1, **characterized** in that the blocks of the image are grouped into macroblocks, wherein the image is scanned macroblock by macroblock.

13. A method according to Claim 1, **characterized** in that the image is scanned horizontally from top-left to bottom-right.

14. A method according to Claim 8, **characterized** in that the filtering order is selected such that a boundary (R34) to the left of said current block is filtered before a boundary (R24) to the top of said current block.

15. A method according to Claim 1, **characterized** in that the image comprises at least one segment of blocks (B1, B2, B3, B4), and that only boundaries between such adjacent blocks which belong to the same segment are filtered.

16. A method according to Claim 15, **characterized** in that all blocks (B1, B2, B3, B4) within one segment are of the same type.

17. A method according to Claim 1, **characterized** in that the image comprises luminance and chrominance components, and that the filtering is performed to reduce visual artefacts due to a boundary between at least one of the following:

- A current block and an adjacent block in the luminance component,
- A current block and an adjacent block in the chrominance component.

5 18. A method according to Claim 1, **characterized** in that the image comprises at least a first colour component and a second colour component, and that the filtering is performed to reduce visual artefacts due to a boundary between at least one of the following:

- 10 – A current block and an adjacent block in the first colour component,
- A current block and an adjacent block in the second colour component.

15 19. A device for reducing visual artefacts in a digital image, which is encoded and decoded by blocks (B1, B2, B3, B4), the device comprising means for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the filtering is arranged to be performed after the current block (B1, B2, B3, B4) is decoded and there is a boundary available for filtering between the
20 current block and a previously decoded block.

20. A device according to Claim 19, **characterized** in that the filtering is arranged to be performed substantially immediately after the current block is decoded and there is a boundary available for filtering.

25 21. A device according to Claim 19, **characterized** in that the filtering is arranged to be performed before all blocks of the digital image are decoded.

22. A device according to Claim 19, **characterized** in that the filtering is arranged to be performed before decoding a block later in the decoding order than the current block and adjacent to the current block.

30 23. A device according to Claim 19, **characterized** in that the filtering and the decoding of a block are arranged to be performed sequentially.

24. A device according to Claim 19, **characterized** in that it comprises means for determining if there exists more than one boundary available for filtering.

5 25. A device according to Claim 19, **characterized** in that it comprises means for performing the filtering in a certain order on more than one boundary (R12, R13, R24, R34).

10 26. A device according to Claim 19, **characterized** in that filtering is arranged to be performed to reduce visual artefacts due to boundaries (R12, R13, R24, R34) between blocks (B1, B2, B3, B4) in the digital image during encoding and decoding of the digital image, and the order of filtering the boundaries in decoding is arranged to be the same as in encoding.

15 27. A device according to Claim 19, **characterized** in that it comprises a filter for correcting a pixel value, means for saving a pixel value corrected by filtering, and means for using the corrected pixel value in filtering at least one other boundary (R12, R13, R24, R34).

20 28. A device according to Claim 25, **characterized** in that it comprises means for performing intra prediction of a subsequent block, a filter for correcting a pixel value, means for saving a pixel value corrected by filtering, and means for using the corrected pixel value in intra prediction of at least one subsequent block.

29. A device according to Claim 25, **characterized** in that the blocks of the image are grouped into macroblocks, and the device comprises means for scanning the image macroblock by macroblock.

25 30. A device according to Claim 29, **characterized** in that the means for scanning the image is arranged to scan the image horizontally from top-left to bottom-right.

30 31. A device according to Claim 25, **characterized** in that the filtering order is arranged such that the boundary (R34) on the left of said current block is filtered before the boundary (R24) at the top of said current block.

32. A device according to Claim 19, **characterized** in that the image comprises at least one segment of blocks (B1, B2, B3, B4), and that the device comprises means for determining which segment the blocks belong to, wherein only boundaries between adjacent blocks which
5 belong to the same segment are filtered.

33. An encoder (50) comprising means for coding and means for locally decoding a digital image by blocks (B1, B2, B3, B4), which encoder comprises means for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an
10 adjacent block (B1, B2, B3, B4), **characterized** in that the filtering is arranged to be performed after the current block (B1, B2, B3, B4) is locally decoded and there is a boundary available for filtering between the current block and a previously locally decoded block.

34. A decoder (60) comprising means for decoding a digital image by blocks (B1, B2, B3, B4), which decoder comprises means for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the filtering is arranged to be performed
15 after the current block (B1, B2, B3, B4) is decoded and there is a boundary available for filtering between the current block and a previously decoded block.

35. A terminal comprising an encoder, which comprises means for coding and means for locally decoding a digital image by blocks (B1, B2, B3, B4), means for performing filtering to reduce visual artefacts
25 due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the filtering is arranged to be performed after the current block (B1, B2, B3, B4) is locally decoded and there is a boundary available for filtering between the current block and a previously locally decoded block.

36. A terminal comprising means for decoding a digital image by blocks (B1, B2, B3, B4), means for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the
30 filtering is arranged to be performed after the current block (B1, B2, B3,

B4) is decoded and there is a boundary available for filtering between the current block and a previously decoded block.

37. A terminal according to Claim 35 or 36, **characterized** in that it is a mobile terminal.

- 5 38. A storage medium for storing a software program comprising machine executable steps for coding and locally decoding a digital video signal by blocks, and for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the
- 10 software program further comprises machine executable steps for performing the filtering after the current block (B1, B2, B3, B4) is locally decoded and there is a boundary available for filtering between the current block and a previously locally decoded block.

- 15 39. A storage medium for storing a software program comprising machine executable steps for decoding a digital video signal by blocks, and for performing filtering to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4), **characterized** in that the software program further comprises machine executable steps for performing the filtering after
- 20 the current block (B1, B2, B3, B4) is decoded and there is a boundary available for filtering between the current block and a previously decoded block.